Update on NWIRP/Northrop Grumman Far Field Plume Status/Next Steps (October 23, 2015)

The districts continue to be concerned with the migrating plume and the need for expedited action; In July Massapequa has informed EPA that it is still frustrated by DEC and may make a concerted push, that includes elected officials, to get EPA to take over the project. EPA suggested that substantive progress was being made and that more progress was anticipated in the coming months (Navy to agree to address contamination above 500 ppb in OU2 hotspot plume, increased coordination between NG and Navy with respect to the plume, Plant 6 pilot study). The project team believes substantive progress has been made to address concerns raised by the water districts last fall. Items 1-3 of this update identify the list of concerns raised by the water districts last fall; EPA's commitments to address those concerns and the status of efforts EPA's commitments. The last two items describe additional issues raised by the districts and next steps. Note that the DEC will be meeting with Assemblyman Saladino on October 23 to discuss the status of the DEC effort to implement the studies required under a bill that he sponsored. The water districts will likely be present at the meeting.

1. **Concerns raised last fall by water districts:**
    a. Communication: Lack of timely communication on matters of import to the water districts. Recent ppm level detections of TCE are cause for concern for supplying safe water; the water districts should be better informed of findings of DEC investigations and other site related activities.
    b. "Hot-spot" definition: The DEC "hot-spot" definition of 1 ppm is too high; lower levels of contamination should be addressed.
    c. Expedited Action: Action on the plume has been slow; action should be expedited.
    d. Northrop Grumman (NG) participation: The absence of NG participation at meetings and in off-property plume remedy is troubling; NG should be brought to the table.
    e. Timely data sharing: Sampling results are slow to be released; the sampling results should be released in a shorter, specified timeframe.
2. **EPA commitments to address these concerns:**
    a. Communication: EPA will coordinate greater involvement of water districts in "government to government" discussion through quarterly meetings with DEC and ultimately with the Navy and NG
    b. Hot-spot definition: EPA will have additional discussions with DEC regarding flexibility in addressing "hot-spot" so that higher levels of contamination, such as the 500 ppb detection just south of the Hempstead Turnpike could be addressed
    c. Expedited action: EPA will work with DEC to require the Navy submission of a workplan to address the of contamination rather than await the completion of planned investigations
    d. NG participation: EPA will work with DEC to require NG to enter into agreement to participate in off-property plume activities and

e. Timely data sharing: EPA will work with DEC to provide raw validated data within shorter, specified timeframes.

3. Status of EPA commitments:

a. Communication: The third quarterly meeting was held with DEC and Water Districts on June 22; Navy and NG participate for the first time (NG originally indicated it would not participate because of ongoing litigation with BWD, so this was a key step in the right direction); there was a good exchange of information at the meeting with respect to the effectiveness of the on-property groundwater containment system, efforts to investigate the hot-spot and evaluate means of addressing the hot-spot. The next quarterly meeting is scheduled for October 29.

b. Hot-spot definition: DEC has agreed to be flexible in its interpretation of ROD "hot-spot" definition. DEC has indicated that while the ROD defined a hot-spot as concentrations at 1 ppm, treatment can be required for portions of the aquifer that have concentrations at less than 1ppm. EPA will continue to push to ensure area just south of Hempstead Turnpike is that contains contaminant concentrations greater than 500 ppb are addressed. EPA has also made it clear to Navy and NG that we will not stray away from this goal and that they need to step up even if they believe the ROD does not require them to do so. At the June 22 meeting the Navy indicated that it was awaiting input from management regarding addressing contamination south of the Hempstead Turnpike (the 500 ppb detection). During a conference call in late July, EPA pressed the Navy on the matter again. The Navy has since confirmed it will attempt to capture the 500 ppb concentration of contaminants but cannot guarantee complete capture of the 500 ppb due to the lack of open space to site the extraction well(s) in an optimum location. NG has also indicated that it will coordinate with Navy in addressing this portion of the plume. Note that the MWD has also (at least verbally) backed off its original position that no contamination should ever impact the MWD supply and are now focused on ensuring the degree of contamination is limited so the extent of treatment at the well head can be kept simple.

c. Expedited action: Navy submitted a workplan in June that includes a pilot study of full-scale pumping of Plant 6 Well 2 for a 3 month period to assess the capture system of the plant. The Navy hoped to do the work over last summer. However, BWD was very slow to get necessary approvals and only recently signed an agreement for the pilot work. This pump test will provide important information regarding the extent of the plume that could be captured by continuous pumping of Plant 6 Well 2; the information will be used to determine where additional extraction may be required to address the hot-spot, if Plant 6 Well 2 is operated full time to address the hotspot.

d. NG participation: NG signed a consent order with DEC on April 21. The agreement requires NG to work cooperatively with the Navy in the development of a plan to address the recently identified elevated levels of contamination; submit a report analyzing results of the study that evaluated the effectiveness of the on-site containment system (ONCT); perform regional plume monitoring and

public water supply outpost well monitoring; maintenance and updating of the groundwater model. Initial deliverables including an analysis of the effectiveness of the on-site containment system, and a workplan for coordinating with the Navy on the hot-spot have been delivered on schedule.

e. Data sharing: DEC has agreed to provide raw validated data within 75 days of sampling. At the June 22 meeting parties agreed that data seems to be flowing according to the agreed upon schedule
f. Note that EPA had requested that DEC provide additional staff to work on the project; a new project manager has been assigned

4. Other Concerns raised by water districts since last fall:

a. Potential need for water districts to treat the emerging contaminants 1,4,-dioxane, perchlorates, and radium 226 and 228. While one of these contaminants has been determined to be site related, the water districts are concerned about these contaminants entering their system and would like more information regarding the contaminants. Sampling is currently being performed for 1,4-dioxane at some wells and the Navy and NG have agreed to sample their wells for 1,4-dioxane using a low detection limit method. The Navy and NG will provide the water districts with perchlorate sampling results that they currently have. At the June 22 meeting DEC agreed to sample for radium 226 and 228; DEC provided the water districts an opportunity to review their sampling plan, have begun sampling some of the wells in the area and will sample public supply wells when they get access from all of the water districts (some have not yet provided permission),
b. Need for improved notice to residents regarding well drilling. DEC/Navy/NG are all working to improve this; we have not heard of any complaints in the last four months. At the June 22 meeting all parties agreed that the new procedures for access and notification had been effective. DEC, the Navy and NG indicate that the procedures have continued to work well since the June meeting.
c. BWD raised concerns regarding how to handle mounting concerns of residents regarding the quality of their water supply. BWD has put in a new large capacity well outside of the plume; their long-term goal is to be "outside the plume" i.e. to obtain all their water from wells that are located outside of the site plume.

5. Next steps:

a. Ensure continued increased communication between parties and process of confronting big issues and bringing them to a head.
b. Encourage BWD and Navy to complete approvals/agreements necessary to get pilot study started soon.
c. Continue to push Navy and NG to identify areas of collaboration on the off-property OU 2 plume. To date NG has agreed to do the following: (1) collect groundwater samples, analyze and provide data for wells around Bethpage Water District Plant 6 and at other discrete locations beginning in September 2015; (2) work with the DEC and the Navy in developing a groundwater model in support of a GM-75/RE-108 Hot Spot Treatment System; and (3) evaluate the capacity of NG's storm water basins to determine if additional water could be discharged to

those basins. The Navy has proposed additional work sharing for any OU 2 hotspot remediation system that is required; NG has responded but did not share their response publicly.

d. Continue to push for addressing plume south of Hempstead Turnpike. As noted above the Navy has since confirmed it will attempt to capture the 500 ppb concentration of contaminants but cannot guarantee complete capture of the 500 ppb due to the lack of open space to site the extraction well(s) in an optimum location. NG has also indicated that it will coordinate with Navy in addressing this portion of the plume.
e. Promote discussions with health departments regarding allowing distribution of water if pumping is increased at Plant 6 to capture and treat portions of the plume (the state and county DOH do not like the concept of "dual use" (i.e., use of supply wells for treatment of plumes in addition to supplying water). This approach appears to be the quickest way to get some additional remediation of the hot-spot (note BWD Well 6-2 is only used at capacity during the high summer demand period).
f. Ensure that the parties provide water districts with data they may have for emerging contaminants; as noted above the parties will be collecting samples for 1,4, dioxane analyses, and the DEC will be completing an evaluation of radium 226 and 228 in the aquifer.
g. Continue to involve water districts in discussions of the status of the "Saladino Study" required by Assembly Bill A09492/ Senate Bill S07832 which was signed into law on December 29, 2014. This law directs the NYSDEC to issue a report outlining a plan to hydraulically contain and remediate the Navy/Grumman plume of contaminated groundwater. The law specifies that this report shall estimate the cost, scope, and timetable of such a project and how the NYSDEC would, along with enlisting the assistance of the New York State Department of Law and the United States Department of Justice, enforce the law and cause the United States Navy to pay for or reimburse the costs associated with this project. DEC has been allotted a sum of $150K to retain an independent contractor to perform this study. DEC involved the water districts in the process of selecting pertinent documents for the contractor to review. The DEC consultants for the study were introduced by phone at the June 22 meeting and the scope for the study was discussed. DEC will be meeting with Saladino and (likely the water districts) on October 23. We should push DEC to engage the water districts in the findings of the study prior to finalizing the report.

Background: The combined former Northrop Grumman (formerly Grumman Aerospace) and the former Naval Weapons Industrial Reserve Plant (NWIRP) Site facility is situated on 605 acres in the Town of Oyster Bay, Bethpage, in Nassau County, N.Y. Approximately 105 of the 605 acres were occupied by the NWIRP, a government -owned, contractor -operated facility.

The Northrop Grumman Corporation was established in the early 1930s, and NWIRP-Bethpage was established in 1941. Activities conducted at the facility included engineering, administrative,

research and development, and testing operations, as well as manufacturing operations for the Navy and the National Aeronautics and Space Administration (NASA). All of the manufacturing portions of the Northrop Grumman and the complete NWIRP facility are now closed. Most of the former NWIRP facility and former Grumman manufacturing properties have been transferred to Nassau County or sold to private developers. The facility is surrounded by industrial and commercial facilities along with several residential communities. There are several public and private water supply wells located within a two-mile radius of the facility. All water supplies are drawn from the Nassau-Suffolk aquifer system, which was designated a sole-source aquifer by EPA in 1975.

The NYSDEC is the lead agency for overseeing remediation from releases at this facility. Both the Navy and Northrop Grumman are listed as responsible parties in New York State's hazardous waste permit system (RCRA equivalent) of Title 6 New York Codes Rules and Regulations Part 373 (6 NYCRR Part 373) and are Class 2 inactive hazardous waste sites under the state's hazardous waste regulations under Title 6 NYCRR Part 375. As the facility no longer manages hazardous wastes, the hazardous waste permit now covers only the RCRA corrective action requirements for cleaning up the area formerly operated Northrop Grumman and owned by either Northrop Grumman or the Navy.